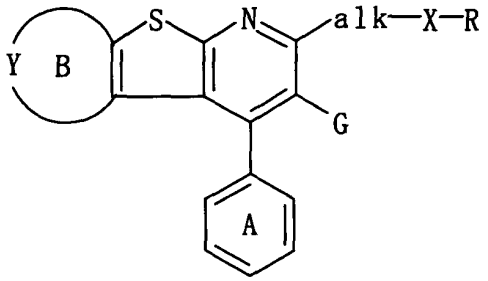
In the Claims

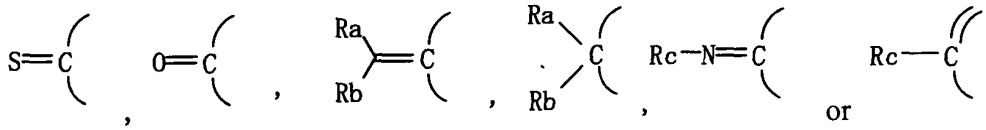
Please Cancel Claim 20, and make the following amendments in the claims as set forth below, without prejudice to future continuing applications.

1. (Amended) A compound represented by the formula (I):



(I)

wherein G represents a halogen atom, hydroxyl group, an optionally substituted amino group, an optionally substituted lower alkyl group or an optionally substituted alkoxy group; alk represents an optionally substituted lower alkylene group; X represents oxygen atom, an optionally oxidized sulfur atom, or $-(CH_2)_q-$**, wherein** ~~(~~q represents an integer of 0 to 5~~)~~; R represents an optionally substituted amino group or an optionally substituted heterocyclic group; ring B represents an optionally substituted Y-containing 5- to 8-membered ring whose ring constituent atoms contain no nitrogen atom; Y represents oxygen atom, an optionally oxidized sulfur atom,



~~(~~wherein Ra and Rb are the same or different and, respectively, represent hydrogen atom, a halogen atom, an optionally substituted hydrocarbon group, an optionally substituted acyl group, an optionally substituted carbamoyl group, an optionally substituted thiocarbamoyl group, an optionally substituted sulfonyl group, an optionally substituted sulfinyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group, an optionally esterified carboxyl group, or an optionally substituted heterocyclic group, or Ra and Rb may be combined each other to form a 5- to 7-membered ring; and Rc represents

hydrogen atom, a halogen atom, an optionally substituted hydrocarbon group, an optionally substituted acyl group, an optionally substituted carbamoyl group, an optionally substituted thiocarbamoyl group, an optionally substituted sulfonyl group, an optionally substituted sulfinyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group, an optionally esterified carboxyl group, or an optionally substituted heterocyclic group~~)~~; and ring A represents an optionally substituted benzene ring, or a salt thereof.

2. (Original) The compound according to claim 1, wherein alk is methylene.

3. (Original) The compound according to claim 1, wherein G is a halogen atom.

4. (Original) The compound according to claim 1, wherein G is chlorine atom.

5. (AMENDED) The compound according to claim 1, wherein X is $-(CH_2)_q-$ **, wherein** ~~(~~q represents an integer of 0 to 5~~)~~.

6. (Original) The compound according to claim 1, wherein X is a bond.

7. (AMENDED) The compound according to claim 1, wherein the optionally substituted amino group represented by R is $-N(R^1)(R^2)$~~(~~wherein R^1 and R^2, which may be the same or different, respectively, represent hydrogen atom, an optionally substituted hydrocarbon group, or an optionally substituted acyl, sulfonyl, sulfinyl, or heterocyclic group, or R^1 and R^2 may be combined each other to form an optionally substituted nitrogen-containing 5- to 7-membered heterocyclic group~~)~~.

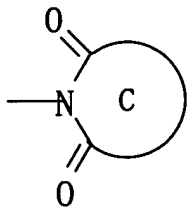
8. (Original) The compound according to claim 7, wherein R^1 and R^2 are combined each other to form a nitrogen-containing optionally substituted 5- to 7-membered heterocyclic group.

9. (Original) The compound according to claim 7, wherein R^1 and R^2 are acyl groups.

10 (Original) The compound according to claim 1, wherein R is an optionally substituted nitrogen-containing heterocyclic group.

11. (Original) The compound according to claim 1, wherein the substituent on the optionally substituted heterocyclic group represented by R is oxo group.

12. (Original) The compound according to claim 1, wherein R is

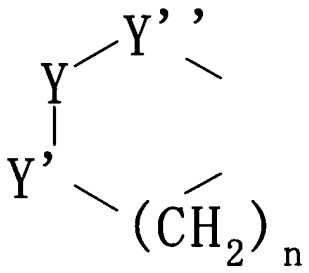


wherein ring C represents a 5- to 7-membered heterocyclic group optionally containing one or more hetero atoms selected from nitrogen, sulfur and oxygen atoms, in addition to the nitrogen atom.

13. (Original) The compound according to claim 1, wherein ring B is an optionally substituted 6-membered ring containing Y.

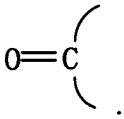
14. (Original) The compound according to claim 1, wherein the substituents on ring B are one to four substituents selected from a C_{1-6} alkyl group and a halogen atom.

15. (Original) The compound according to claim 1, wherein ring B is a ring represented by the formula:



wherein Y' and Y" represent carbon atom, sulfur atom or oxygen atom, respectively; n represents an integer of 0 to 4; and Y is as defined in claim 1.

16. (Original) The compound according to claim 1, wherein Y is an optionally oxidized sulfur atom or



17. (Original) The compound according to claim 1, wherein ring A is benzene ring which may be substituted with one to four substituents selected from a halogen atom, nitro group, an optionally substituted alkyl group, an optionally substituted hydroxyl, an optionally substituted thiol group, an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group, and an optionally substituted aromatic ring group.

18 (Original) The compound according to claim 1, wherein the substituent on ring A is a C_{1-6} alkoxy group or hydroxyl group.

19 (Original) The compound according to claim 1, wherein the compound represented by formula (I) is:

1-{[3-chloro-4-(4-methoxyphenyl)-7-oxo-5,6,7,8-tetrahydro[1]benzothieno[2,3-b]pyridin-2-yl]methly}-2,5-pyrrolidinedione ethylene ketal;

3-{[3-chloro-4-(4-methoxyphenyl)-7-oxido-5,8-dihydro-6H-thiopyrano[4',3':4,5]thieno[2,3-b]pyridin-2-yl]methyl}-1,3-thiazolidine-2,4-dione or an optically active compound thereof or a salt thereof;

3-{[3-chloro-4-(4-methoxyphenyl)-7-oxido-5,8-dihydro-6H-thiopyrano[4',3':4,5]thieno[2,3-b]pyridin-2-yl]methyl}-1,3-oxazolidine-2,4-dione or an optically active compound thereof or a salt thereof;

1-{[3-chloro-4-(4-methoxyphenyl)-7-oxido-5,8-dihydro-6H-thiopyrano[4',3':4,5]thieno[2,3-b]pyridin-2-yl]methyl}-2,5-pyrrolidinedione or an optically active compound thereof or a salt thereof;

1-{[3-chloro-4-(4-methoxyphenyl)-7-oxo-5,6,7,8-tetrahydro [1]benzothieno[2,3-b]pyridin-2-yl]methyl}-2,5-pyrrolidinedione or a salt thereof;

1-{[3-chloro-4-(4-methoxyphenyl)-7-oxo-5,6,7,8-tetrahydro[1]benzothieno[2,3-b]pyridin-2-yl]methyl}-2,5-pyrrolidinedione or a salt thereof;

3-{[3-chloro-4-(4-methoxyphenyl)-8,8-dimethyl-7-oxo-5,6,7,8-tetrahydro[1]benzothieno[2,3-b]pyridin-2-yl]methyl}-1,3-thiazolidine-2,4-dione or a salt thereof;

1-{[3-chloro-4-(4-methoxyphenyl)-6,6-dimethyl-7-oxo-5,6,7,8-tetrahydro[1]benzothieno[2,3-b]pyridin-2-yl]methyl}-2,5-pyrrolidinedione or a salt thereof; or

2-aminomethyl-3-chloro-4-(4-methoxyphenyl)-7-oxido-5,8-dihydro-6H-thiopyrano[4',3':4,5]thieno[2,3-b]pyridine or an optically active compound thereof or a salt thereof.

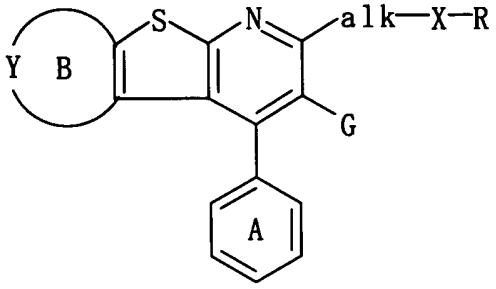
20. (CANCELED)

21. (Original) The compound according to claim 1, wherein the compound represented by formula (I) is:
1-{[3-chloro-4-(4-methoxyphenyl)-7-oxo-5,6,7,8-tetrahydro[1]benzothieno[2,3-b]pyridin-2-yl]methyl}-2,5-pyrrolidinedione or a salt thereof;
1-{[3-chloro-4-(4-methoxyphenyl)-8,8-dimethyl-7-oxo-5,6,7,8-tetrahydro[1]benzothieno[2,3-b]pyridin-2-yl]methyl}-2,5-pyrrolidinedione or a salt thereof;
3-{[3-chloro-4-(4-methoxyphenyl)-8,8-dimethyl-7-oxo-5,6,7,8-tetrahydro[1]benzothieno[2,3-b]pyridin-2-yl]methyl}-1,3-thiazolidine-2,4-dione or a salt thereof; or
1-{[3-chloro-4-(4-methoxyphenyl)-6,6-dimethyl-7-oxo-5,6,7,8-tetrahydro[1]benzothieno[2,3-b]pyridin-2-yl]methyl}-2,5-pyrrolidinedione or a salt thereof.

22. (Original) The compound according to claim 1, wherein the compound represented by formula (I) is:
1-{[3-chloro-4-(4-hydroxyphenyl)-7,7-dioxido-5,8-dihydro-6H-thiopyrano[4′,3′:4,5]thieno[2,3-b]pyridin-2-yl]methyl}-2,5-pyrrolidinedione or a salt thereof;
4-{3-chloro-2-[2,5-dioxo-1-pyrrolidinyl)methyl]-7,7-oxido-5,8-dihydro-6H-thiopyrano[4′,3′:4,5]thieno[2,3-b]pyridin-4-yl]phenyl} diisobutyl phosphate or a salt thereof; or
butyl 4-{3-chloro-2-[(2,5-dioxo-1-pyrrolidinyl)methyl]-7,7-dioxido-5,8-dihydro-6H-thiopyrano[4′,3′:4,5]thieno[2,3-b]pyridin-4-yl}phenyl carbonate or a salt thereof.

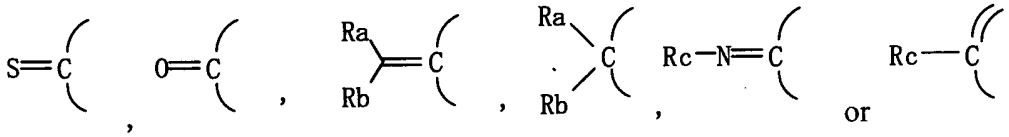
23. (Original) A prodrug of the compound according to claim 1.

24. (AMENDED) A process for producing a compound represented by the general formula (I):



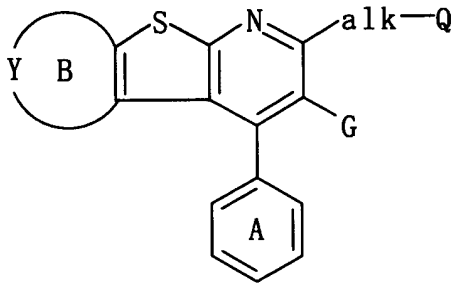
(I)

wherein G represents a halogen atom, hydroxyl group, an optionally substituted amino group, an optionally substituted lower alkyl group or an optionally substituted alkoxy group; alk represents an optionally substituted lower alkylene group; X represents oxygen atom, an optionally oxidized sulfur atom, or $-(CH_2)_q-$ **, wherein** ~~(~~q represents an integer of 0 to 5~~)~~; R represents an optionally substituted amino group or an optionally substituted heterocyclic group; ring B represents an optionally substituted Y-containing 5- to 8-membered ring whose ring constituent atoms contain no nitrogen atom; Y represents oxygen atom, an optionally oxidized sulfur atom,



~~(~~wherein Ra and Rb are the same or different and, respectively, represent hydrogen atom, a halogen atom, an optionally substituted hydrocarbon group, an optionally substituted acyl group, an optionally substituted carbamoyl group, an optionally substituted thiocarbamoyl group, an optionally substituted sulfonyl group, an optionally substituted sulfinyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group, an optionally esterified carboxyl group, or an optionally substituted heterocyclic group, or Ra and Rb may be combined each other to form a 5- to 7-membered ring; and Rc represents hydrogen atom, a halogen atom, an optionally substituted hydrocarbon group, an optionally substituted acyl group, an optionally substituted carbamoyl group, an optionally substituted thiocarbamoyl group, an optionally substituted sulfonyl

group, an optionally substituted sulfinyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group, an optionally esterified carboxyl group, or an optionally substituted heterocyclic group; and ring A represents an optionally substituted benzene ring, or a salt thereof which comprises reacting a compound represented by the formula (II-1):

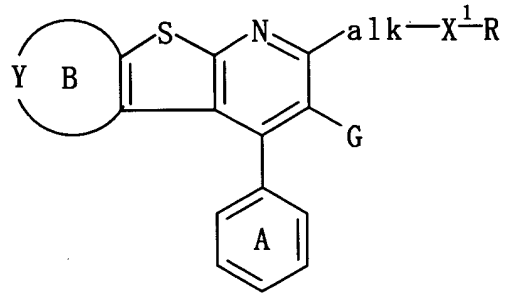


(II-1)

wherein Q represents a leaving group; and the other symbols are as defined above, or a salt thereof, with a compound represented by the formula (III):

$R\text{-}X^1H$ (III)

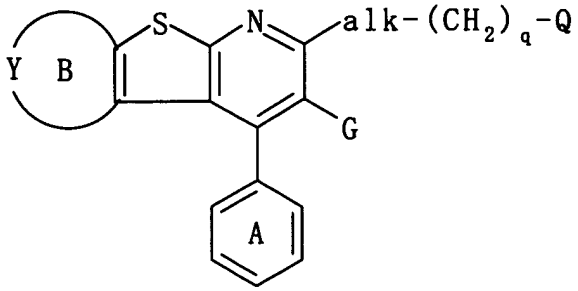
wherein R is as defined above; and X^1 represents oxygen atom, or an optionally oxidized sulfur atom, or a salt thereof to obtain a compound represented by the formula (I-1):



(I-1)

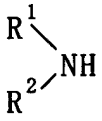
wherein each symbol is as defined above, or a salt thereof; or

reacting a compound represented by the formula (II-2):



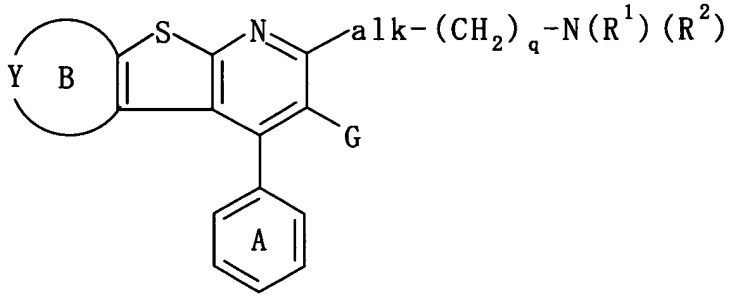
(II-2)

wherein each symbol is as defined above, or a salt thereof, with a compound represented by the formula (IV):



(IV)

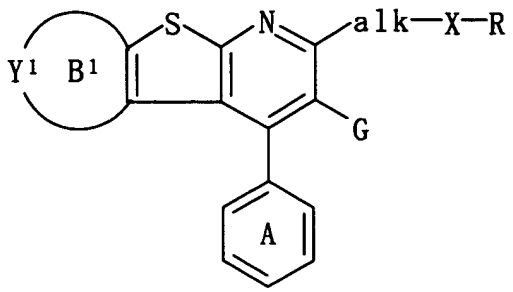
wherein R^1 and R^2, which may be the same or different, respectively, represent an optionally substituted hydrocarbon group, an optionally substituted acyl group, an optionally substituted sulfonyl group, or an optionally substituted heterocyclic group, or R^1 and R^2 may be combined each other to form an optionally substituted nitrogen-containing 5- to 7-membered ring, or a salt thereof to obtain a compound represented by the formula (I-2):



(I-2)

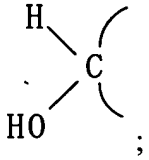
wherein each symbol is as defined above, or a salt thereof; or

subjecting a compound represented by the formula (I-3):



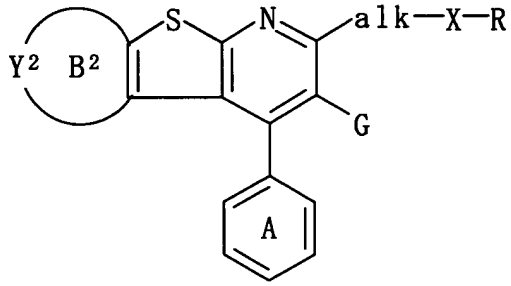
(I-3)

wherein ring B^1 represents an optionally substituted Y^1-containing 5- to 8-membered ring whose ring constituent atoms contain no nitrogen atom; Y^1 represents sulfur atom or



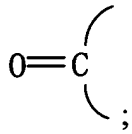
;

and the other symbols are as defined above, or a salt thereof to oxidation to obtain a compound represented by the formula (I-4):



(I-4)

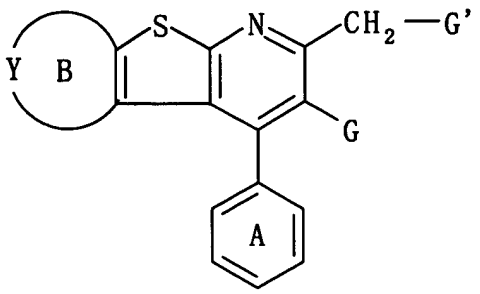
wherein ring B^2 represents an optionally substituted Y^2-containing 5- to 8-membered ring whose constituent ring atoms contain no nitrogen atom; Y^2 represents an oxidized sulfur atom or



;

and the other symbols are as defined above, or a salt thereof; or

reacting a compound represented by the formula (II-3):

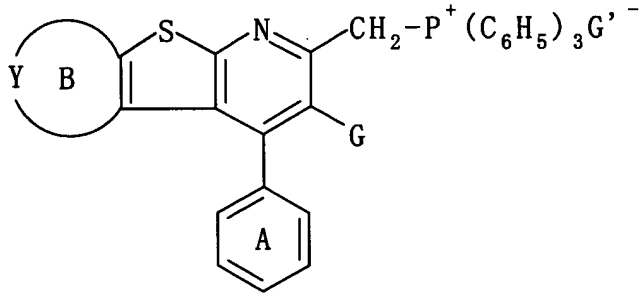


(II-3)

wherein G' represents a halogen atom; and the other symbols are as defined above, or a salt thereof, with

$(C_6H_5)_3P$

in a solvent to obtain a compound represented by formula (VI):

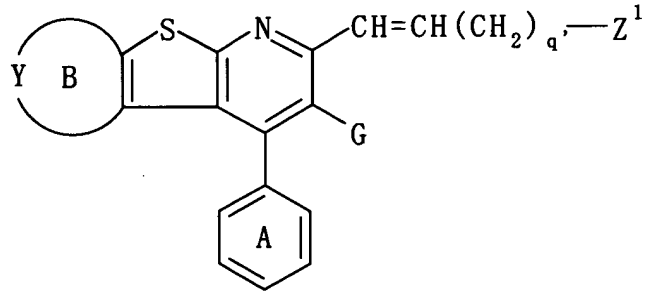


(VI)

wherein each symbol is as defined above, then reacting the compound represented by the formula (VI) with a compound represented by the formula (VII):

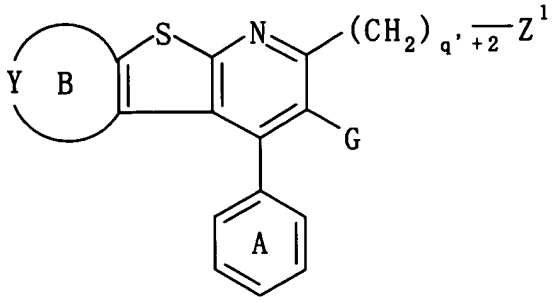
$$Z^1\text{-}(CH_2)_{q'}CHO \qquad \text{(VII)}$$

wherein Z^1 represents an optionally substituted heterocyclic group; and q' represents an integer of 0 to 4, or a salt thereof to obtain a compound represented by formula (VIII):



(VIII)

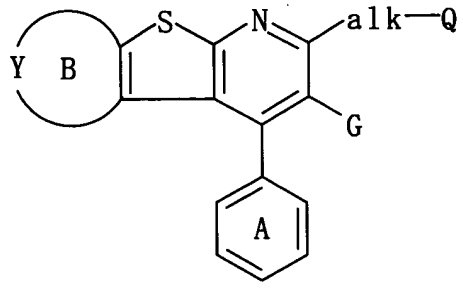
wherein each symbol is as defined above, or a salt thereof, and further subjecting the compound represented by formula (VIII) or a salt thereof to reduction to obtain a compound represented by the formula (I-5):



(I-5)

wherein each symbol is as defined above, or a salt thereof; or

reacting a compound represented by the formula (II-1):

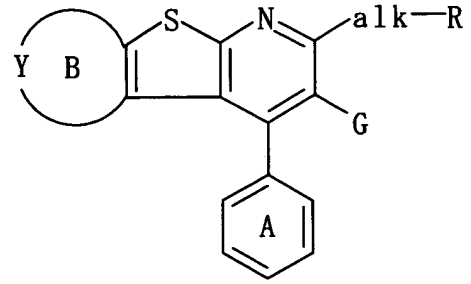


(II-1)

wherein each symbol is as defined above, or a salt thereof, with a compound represented by formula (XII):

R-H (XII)

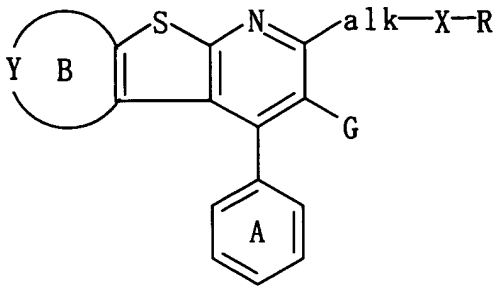
wherein R is as defined above, or a salt thereof to obtain a compound represented by the formula (I-9):



(I-9)

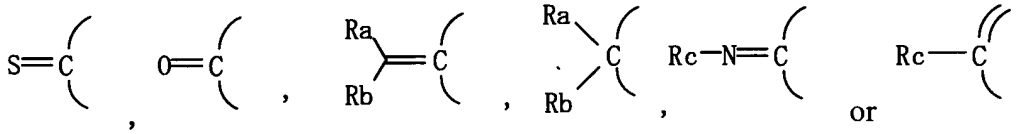
wherein each symbols is as defined above, or a salt thereof.

25. (AMENDED) A pharmaceutical composition comprising a compound represented by the general formula (I):



(I)

wherein G represents a halogen atom, hydroxyl group, an optionally substituted amino group, an optionally substituted lower alkyl group or an optionally substituted alkoxy group; alk represents an optionally substituted lower alkylene group; X represents oxygen atom, an optionally oxidized sulfur atom, or $-(CH_2)_q-$ **, wherein** ~~(~~q represents an integer of 0 to 5~~)~~; R represents an optionally substituted amino group or an optionally substituted heterocyclic group; ring B represents an optionally substituted Y-containing 5- to 8-membered ring whose ring constituent atoms contain no nitrogen atom; Y represents oxygen atom, an optionally oxidized sulfur atom,



~~(~~wherein Ra and Rb are the same or different and, respectively, represent hydrogen atom, a halogen atom, an optionally substituted hydrocarbon group, an optionally substituted acyl group, an optionally substituted carbamoyl group, an optionally substituted thiocarbamoyl group, an optionally substituted sulfonyl group, an optionally substituted sulfinyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group, an optionally esterified carboxyl group, or an optionally substituted heterocyclic group, or Ra and Rb may be combined each other to form a 5- to 7-membered ring; and Rc represents hydrogen atom, a halogen atom, an optionally substituted hydrocarbon group, an optionally substituted acyl group, an optionally substituted carbamoyl group, an

optionally substituted thiocarbamoyl group, an optionally substituted sulfonyl group, an optionally substituted sulfinyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group, an optionally esterified carboxyl group, or an optionally substituted heterocyclic group~~)~~; and ring A represents an optionally substituted benzene ring, a prodrug thereof, or a pharmaceutically acceptable salt thereof **, and a pharmaceutically acceptable carrier, excipient or diluent**.

26. (Original) The pharmaceutical composition according to claim 25 for prevention or treatment of inflammatory diseases.

27. (Original) The pharmaceutical composition according to claim 25 for prevention or treatment of arthritis.

28. (Original) The pharmaceutical composition according to claim 25 for prevention or treatment of rheumatism.

29. (Original) The pharmaceutical composition according to claim 25 for prevention or treatment of chronic rheumatoid arthritis.

30. (Original) The pharmaceutical composition according to claim 25, which is a bone resorption suppressant.

31. (Original) The pharmaceutical composition according to claim 25 for prevention or treatment of osteoporosis.

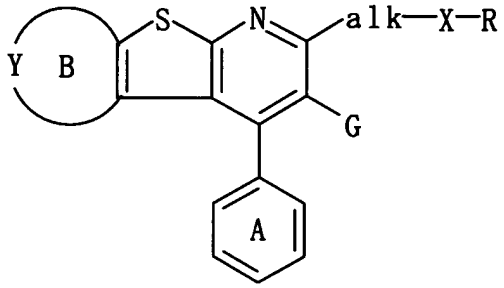
32. (Original) The pharmaceutical composition according to claim 25, which is a suppressant of cytokine production.

33. (Original) The pharmaceutical composition according to claim 25 for prevention or treatment of autoimmune diseases.

34. (Original) The pharmaceutical composition according to claim 25 for prevention or treatment of rejection reaction after organ transplantation.

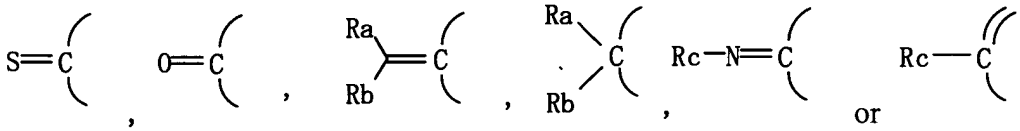
35. (Original) The pharmaceutical composition according to claim 25, which is a T-cell differentiation-controlling medicament.

36. (AMENDED) A method for preventing or treating inflammatory diseases which comprises administering an effective amount of a compound represented by the formula (I):



(I)

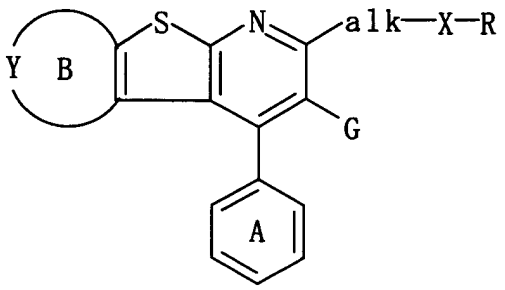
wherein G represents a halogen atom, hydroxyl group, an optionally substituted amino group, an optionally substituted lower alkyl group or an optionally substituted alkoxy group; alk represents an optionally substituted lower alkylene group; X represents oxygen atom, an optionally oxidized sulfur atom, or $-(CH_2)_q-$, **wherein** ~~(~~q represents an integer of 0 to 5~~)~~; R represents an optionally substituted amino group or an optionally substituted heterocyclic group; ring B represents an optionally substituted Y-containing 5- to 8-membered ring whose ring constituent atoms contain no nitrogen atom; Y represents oxygen atom, an optionally oxidized sulfur atom,



~~(~~wherein Ra and Rb are the same or different and, respectively, represent hydrogen atom, a halogen atom, an optionally substituted hydrocarbon group, an optionally substituted acyl group, an optionally substituted carbamoyl group, an optionally substituted thiocarbamoyl group, an optionally substituted sulfonyl group, an optionally substituted sulfinyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group, an optionally esterified carboxyl group, or an optionally substituted heterocyclic group, or Ra and Rb may be combined each other to form a 5- to 7-membered ring; and Rc represents hydrogen atom, a halogen atom, an optionally substituted hydrocarbon group, an optionally substituted acyl group, an optionally substituted carbamoyl group, an optionally substituted thiocarbamoyl group, an optionally substituted sulfonyl group, an optionally substituted sulfinyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group, an optionally esterified carboxyl

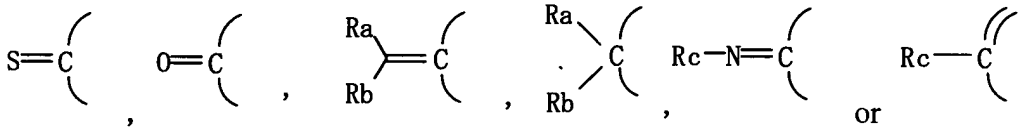
group, or an optionally substituted heterocyclic group~~)~~; and ring A represents an optionally substituted benzene ring, a prodrug thereof, or a pharmaceutically acceptable salt thereof, to a mammal in need of the prevention or treatment.

37. (AMENDED) **A method for making a pharmaceutical composition for preventing or treating inflammatory diseases comprising combining** ~~**Use of**~~ a compound represented by the formula (I):



(I)

wherein G represents a halogen atom, hydroxyl group, an optionally substituted amino group, an optionally substituted lower alkyl group or an optionally substituted alkoxy group; alk represents an optionally substituted lower alkylene group; X represents oxygen atom, an optionally oxidized sulfur atom, or $-(CH_2)_q-$ **, wherein** ~~(~~q represents an integer of 0 to 5 ~~)~~; R represents an optionally substituted amino group or an optionally substituted heterocyclic group; ring B represents an optionally substituted Y-containing 5- to 8-membered ring whose ring constituent atoms contain no nitrogen atom; Y represents oxygen atom, an optionally oxidized sulfur atom,



~~(~~wherein Ra and Rb are the same or different and, respectively, represent hydrogen atom, a halogen atom, an optionally substituted hydrocarbon group, an optionally substituted acyl group, an optionally substituted carbamoyl group, an optionally substituted thiocarbamoyl group, an optionally substituted sulfonyl group, an optionally substituted sulfinyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group, an optionally esterified carboxyl

group, or an optionally substituted heterocyclic group, or Ra and Rb may be combined each other to form a 5- to 7-membered ring; and Rc represents hydrogen atom, a halogen atom, an optionally substituted hydrocarbon group, an optionally substituted acyl group, an optionally substituted carbamoyl group, an optionally substituted thiocarbamoyl group, an optionally substituted sulfonyl group, an optionally substituted sulfinyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group, an optionally esterified carboxyl group, or an optionally substituted heterocyclic group~~)~~; and ring A represents an optionally substituted benzene ring, a prodrug thereof, or a pharmaceutically acceptable salt thereof ~~**in the manufacture of a pharmaceutical composition for preventing or treating inflammatory diseases**~~ **, with a pharmaceutically acceptable carrier, excipient or diluent**.